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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,221	10/15/2003	Mark Francis Wilding	SVL920030066US1	8093

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HOUSTON, TX 77056-6582

EXAMINER

TANG, KENNETH

ART UNIT	PAPER NUMBER
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2195

MAIL DATE	DELIVERY MODE
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09/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/687,221

Applicant(s)

WILDING ET AL.

Examiner

Kenneth Tang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003 and 12 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,9-12,14 and 15 is/are rejected.
- 7) ☒ Claim(s) 3,8 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/15/03, 1/12/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

1. Claims 1-15 are presented for examination.

Specification

2. The abstract of the disclosure is objected to because the abstract contains more than 150 words (See 37 CFR 1.72(b) and MPEP §608.01(b)). Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4-5, 9-10, and 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4, 9 and 14 recite the limitation "the dead zone" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claims 5, 10, and 15 are also rejected based upon being dependent of the rejected claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4-7, 9-12, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pase et al. (hereinafter Pase) (US 5,566,321) in view of Steensgaard (US 2002/0095453 A1).

5. As to claim 1, Pase teaches a method comprising the step of

(a) providing at least one stack/heap combination in an address space on the processor (shared heap and shared stack; or private heap and private stack), wherein the heap is for local memory usage (local memory 404) and wherein the stack and heap grow in opposite directions (private heap segment 306 grows upward/private stack segment 308 grows downward; or shared heap segment 310 grows upward/shared stack segment 312 grows downward) (col. 4, lines 24-54, col. 1, lines 14-57).

6. Pase is silent in teaching the processor being multithreaded and that threads are associated with the stack and heap. However, Steensgaard teaches using one or more thread-specific heaps and thread specific stacks within a multithreaded processing environment ([0067], [0007]). Pase (col. 1, lines 7-9 and 54-55) and Steensgaard ([0001], [0007]) are analogous art because they are both in the same field of endeavor of memory management using heaps and stacks as well as providing garbage collection. One of ordinary skill in the art would have known to modify Pase such that one or more thread-specific heaps and thread specific stacks are included within a multithreaded processing environment. The suggestion/motivation for doing so would have been to provide the predicted result of decreasing garbage collection latency in a computer system ([0007]). Therefore, it would have been obvious to combine the references of

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Pase and Steensgaard to obtain the invention as specified in claim 1. Furthermore, since it was shown that the method steps which reduce contention were taught by Pase in view of Steensgaard, the references as combined also teach reducing contention in a multithreaded computer.

7. As to claim 2, Pase teaches the method of claim 1 in which the at least one stack/ heap combination comprises at least two stack/heap combinations (private heap segment 306 grows upward/private stack segment 308 grows downward; and shared heap segment 310 grows upward/shared stack segment 312 grows downward) (col. 4, lines 24-54). Steensgaard teaches using one or more thread-specific heaps and thread specific stacks within a multithreaded processing environment ([0067], [0007]).

8. As to claim 4, Pase teaches the method of claim 1 wherein the dead zone providing step (a) further comprises the steps of:

(a1) providing a base address for the stack (Fig. 4c, 312, 308, col. 4, lines 24-54, col. 1, lines 14-57);

(a2) creating an initialization for the heap from the base address (Fig. 4c, 306, 310, col. 4, lines 24-54, col. 1, lines 14-57); and

(a3) assigning memory regions in the address space to the stack and heap (Fig. 4c, 306, 308, 310, 312, col. 4, lines 24-54, col. 1, lines 14-57).

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Steensgaard teaches using one or more thread-specific heaps and thread specific stacks within a multithreaded processing environment ([0067], [0007])

9. As to claim 5, Pase teaches the method of claim 4 which includes the step of (a4) allowing the assigned memory regions of the stack and heap to grow in opposite directions as needed (private heap segment 306 grows upward/private stack segment 308 grows downward; or shared heap segment 310 grows upward/shared stack segment 312 grows downward) (col. 4, lines 24-54, col. 1, lines 14-57). Steensgaard teaches using one or more thread-specific heaps and thread specific stacks within a multithreaded processing environment ([0067], [0007])

10. As to claims 6-7, they are rejected for the same reasons as stated in the rejections of claims 1-2.

11. As to claims 9-10, they are rejected for the same reasons as stated in the rejections of claims 4-5.

12. As to claims 11-12, they are rejected for the same reasons as stated in the rejections of claims 1-2.

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13. As to claims 14-15, they are rejected for the same reasons as stated in the rejections of claims 4-5.

Allowable Subject Matter

14. Claims 3, 8, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

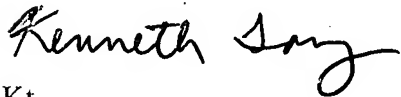
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kt

9/1/07